

# Planning for Septic Systems

## Use of Onsite Decentralized Wastewater Systems in Developing Areas

Sponsored by the National Association of County Planners and the NACo Nonpoint Source Pollution Prevention Project



Cluster system diagram.

Picture for Illustration Purposes, courtesy of Orenco, INc.

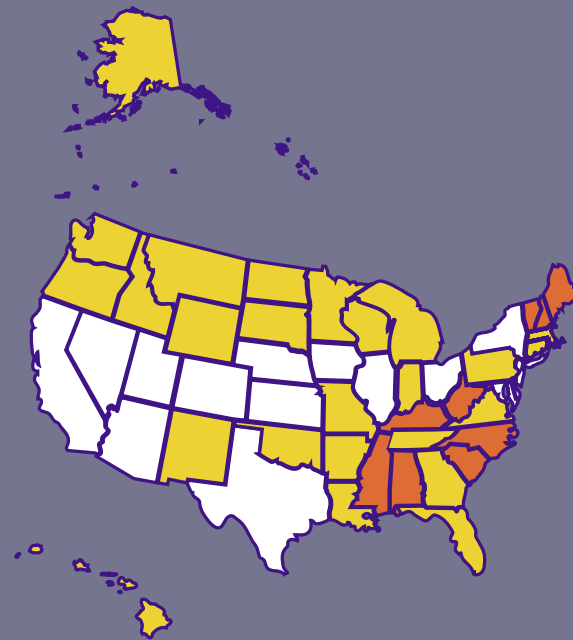
Counties across the country continuously grapple with the effects of growth and development on local communities and natural resources. Additionally, it is imperative that counties ensure that an adequate wastewater infrastructure be in place to address this growth pressure.

County and local governments should do a comprehensive assessment of all their wastewater options when a new development is being proposed. When a community determines that onsite decentralized wastewater treatment (onsite) facilities are more technically or financially feasible to serve a new development than the extension of a central sewer system, county decision-makers, planners, and local public health officials should have a comprehensive management approach in place for the proper design, installation, operation and maintenance of those systems. Many cases of contamination to aquatic habitat, shellfish beds and groundwater have been linked to failing onsite systems (see box), so it is imperative that management of onsite systems be key to a county's planning and zoning decision making process.

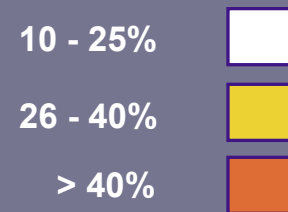
Burnett is a small, unincorporated community in Pierce County, Washington, located in a rural area southeast of Tacoma. All of the approximately 50 homes are served by onsite wastewater systems. In 1998, a wastewater risk assessment survey conducted by the Washington Onsite Sewage Association (WOSSA) and funded by the Pierce County Department of Community Services indicated that 15 of the 50-onsite wastewater systems were failing or malfunctioning. The systems were determined to be a risk to public health and a threat to South Prairie Creek, an important salmon-spawning habitat.

### The Realities of Onsite Systems

Onsite systems are here to stay since these systems provide basic sanitation especially in small and rural communities. They serve approximately 25 percent of the U.S. population and one-third of new development. However, the U.S. Census tells us that at least 10 percent of onsite systems fail and state agencies report that these failing systems are the third most common source of groundwater contamination.



### Percentage of state residents using onsite wastewater systems



### Benefits of an Onsite Management Plan

An onsite management plan promotes and protects:

- Environmental quality
- Public health
- Homeowner investment
- Community investment
- Local tax base



Graphic courtesy of Texas Cooperative Extension – Texas A&M University System

With these factors in mind, an onsite management plan should be in place as part of a community's comprehensive plan.

Permitting processes and construction guidelines in the comprehensive plan can be important tools to ensure that onsite systems are properly sited and constructed, minimizing the chances of failing systems and, as a result, protecting the counties' natural resources. An onsite management plan would also provide the institutional structure for the long-term management of these systems that would assure that they function properly for the life of the property.

Although the U.S. Environmental Protection Agency (EPA) has found that adequately managed onsite systems can protect public health and the environment and provide long-term solutions for the nation's wastewater needs, few communities have developed the necessary organizational structure to effectively manage these systems. Without such management, onsite systems may not provide adequate treatment and discharge of wastewater.

Development and implementation of an onsite management plan with proper oversight

better insures that the onsite systems are planned, sited, designed, installed, operated, and maintained properly so they continue to meet public health and water quality performance standards. The plan could naturally incorporate new technologies for onsite systems where appropriate. These new technologies may allow development on sites that previously could not sustain an onsite system, though the cost to install and maintain these new systems would be higher than many of the conventional onsite systems.

With an onsite management program in place, planners can target growth where it can best be accommodated and strategize a mixture of technologies to better match the level of growth for each site. For example, the plan could direct:

- Central wastewater systems to serve densely populated areas
- Cluster onsite wastewater systems to serve moderately populated areas where extension of central systems is not cost effective
- Individual onsite wastewater systems to serve outlying or more sparsely populated areas

Having an onsite management plan in place would result in both water quality and quantity benefits because the effluent would not be concentrated in one area making a major impact on the receiving water. The treated effluent would be more broadly dispersed, providing for an improved recycling of water resources.

As growth and development continues, adequately planned wastewater infrastructure reduces the large and unpredictable drain on a jurisdiction's financial resources. This is important especially when centralized wastewater systems cannot expand fast enough to serve growing population and when implementation of central wastewater treatment systems is simply not feasible.

An onsite management plan facilitates planned development within the existing zoning regulations. It is important to note that the program can manage sprawl within current zoning regulations, but not as a zoning regulation. Too frequently, jurisdictions have tried to control growth not by planning or zoning, but by setting arbitrary minimum lot sizes for properties using onsite systems.

## Resources to Assist Counties in Developing and Implementing an Onsite Management Plan

### EPA's Guidelines for Management of Onsite/Decentralized Wastewater Systems

The guidelines consist of five sets of model approach practices that help counties develop, modify, and implement laws and regulations in areas of onsite system management planning. Each model program includes a set of recommended approaches for planning, siting, design, performance, installation, operation, maintenance, and monitoring of wastewater systems.

Guidelines are available at <http://www.epa.gov/owm/onsite>

### Onsite Wastewater Treatment Systems Manual

The manual provides up-to-date information on onsite treatment system siting, design, installation, maintenance, replacement, and management.

The manual is available at <http://www.epa.gov/ord/nrml/dubs/625R00008/625R00008.hlm>

### National Onsite Demonstration Program [http://www.nesc.wvu.edu/nodp/nodp\\_index.htm](http://www.nesc.wvu.edu/nodp/nodp_index.htm)

National Small Flows Clearinghouse

### Wastewater Products Catalog

[http://www.nesc.wvu.edu/nsfc/nsfc\\_productscatalog.htm](http://www.nesc.wvu.edu/nsfc/nsfc_productscatalog.htm)

**EPA/Office of Wastewater Management**  
(Decentralized Wastewater Management)  
[www.epa.gov/owm/mtb/decent/index.htm](http://www.epa.gov/owm/mtb/decent/index.htm)

**EPA/Office of Wetlands, Oceans and Watersheds/Nonpoint Source Pollution Prevention Branch**  
<http://www.epa.gov/owow/nps/>

**NACo Technical Services for resources on nonpoint source pollution prevention and onsite wastewater management issues**  
[http://www.naco.org/Template.cfm?Section=technical\\_assistance](http://www.naco.org/Template.cfm?Section=technical_assistance)

**National Association of County Planners**  
(affiliate to NACo) develops and disseminates information on the characteristics and methodologies of the county planning function and provides a forum through which membership exchanges ideas and experiences related to county planning  
<http://www.co.montgomery.ny.us/website/countyplanners/>

**National Onsite Wastewater Recycling Association**  
<http://www.nowra.org>

**National Association of Wastewater Transporters**  
<http://www.nawt.org>

**National Association of City and County Health Officers**  
<http://www.naccho.org/project79.cfm>



Installation of a septic tank.  
Photograph courtesy of Virginia Department of Health

While there are certain space requirements for soil based treatment and dispersal systems, setting arbitrary minimum property requirements should not be used as a zoning tool because though it may restrict growth, it cannot guarantee that environmental resources would be protected.

Onsite systems should be viewed as a part of the planned wastewater infrastructure, not simply a temporary measure until an extension to a central wastewater system is available. An onsite management plan identifies appropriate management practices to assure compliant performance including appropriate site assessment (even before platting), access to design options, assurances for operations and maintenance, etc.

The county health department and the local planning agencies should work together to identify the critical program elements in regulating and planning future onsite systems. Although these two entities often do not associate in a planning relationship, they are good examples of local public health agencies and planning departments working together to develop onsite management plans. Many are in Colorado such as in Jefferson County, Larimer County and the Tri-County area just outside of Denver that encompasses Adams, Arapahoe and Douglas Counties.

### What are the steps in developing an onsite management plan?

- Know your area - A key part in developing and revising a comprehensive plan and an onsite management plan is knowing what type of growth pressure your community is experiencing and where that growth is taking place. Key questions in this exercise include: What is the density of onsite systems in the

growth areas, what future land uses are being planned for sites in those areas, what mix of wastewater treatment approaches is appropriate for those growth areas, and what current applicable regulations exist at the local, county, state, and federal levels?

- Foster community involvement - Again, for the entire comprehensive plan, the community must be fully engaged during the development of the onsite management plan. This may include educating homeowners, holding public hearings, identifying key advocates and critical local agencies and setting up a community task force or stakeholder group. The key is engaging all stakeholders from beginning to the eventual development of the plan. Communities may resist an onsite management plan especially if it leads to more regulation or if it costs them more money. Through a participatory process, stakeholders will learn that it is more cost effective in the long run to establish an onsite management plan.

- Know Existing Technologies - Research technologies available to the community. This may require hiring an expert or commissioning a team to evaluate the appropriate technologies.

(please see websites that follow)

- Develop a Plan - Synthesize information and research from the stakeholder groups, technical experts, and details of the area to develop an appropriate onsite management plan. Again, stakeholder involvement in this process will better ensure community support in the implementation of an onsite management plan.

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Inspections of a Septic tank.

## A guide for county decision makers, planners and local public health officials

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Installation of a peat sifter  
Photograph courtesy of Virginia Department of Health